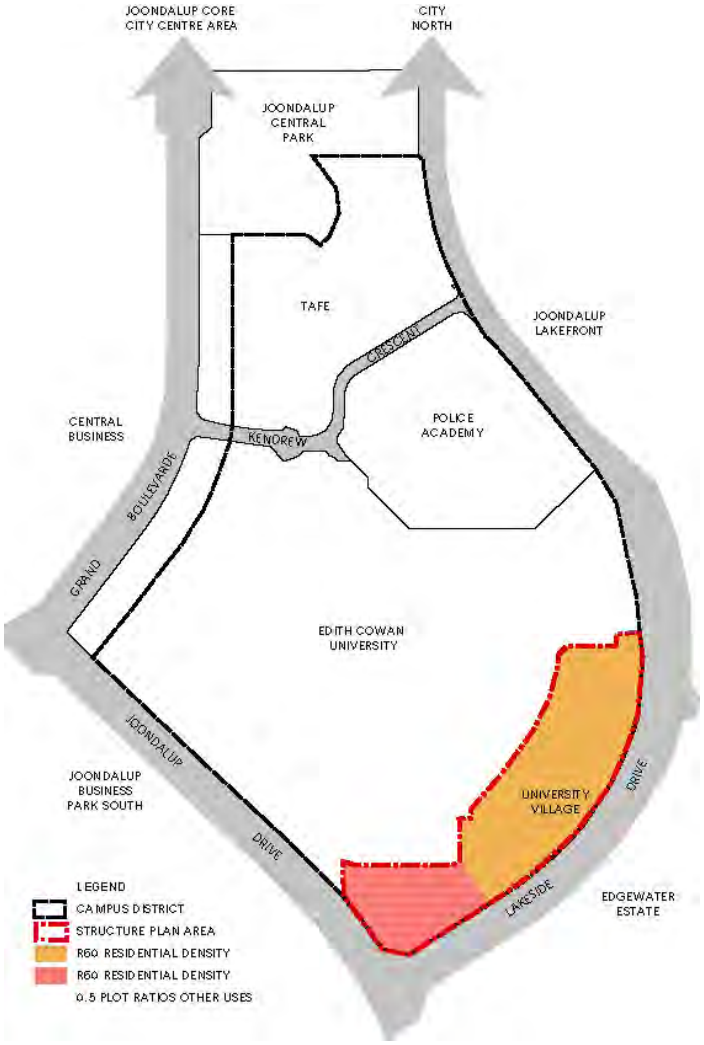
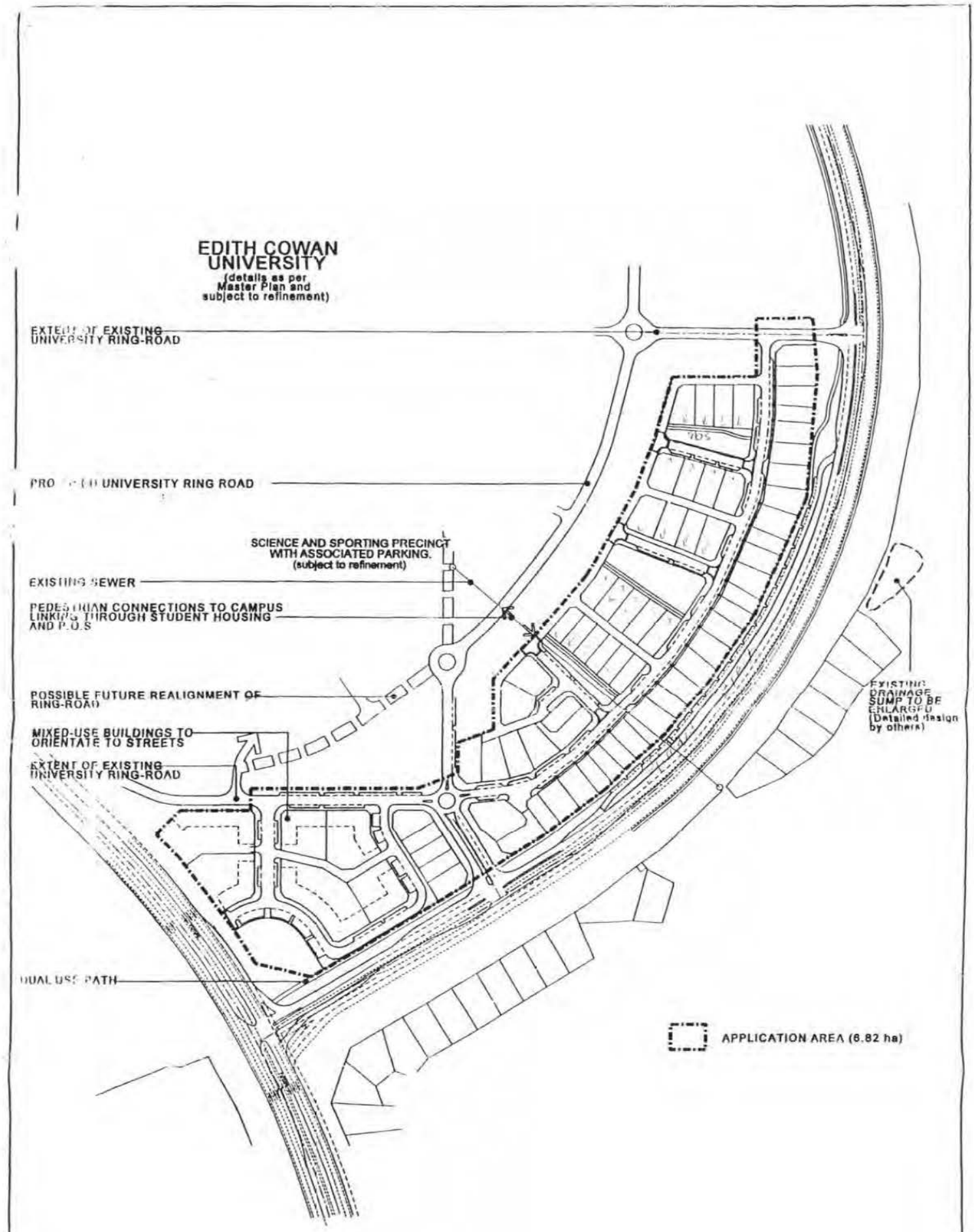
Joondalup City Centre
Development Plan and Manual

CAMPUS DISTRICT





UNIVERSITY VILLAGE
SUBDIVISION GUIDE PLAN

LANDCORP

1:2000

T.B.

Taylor Burrell
Town planning and design

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Part 2 is not included here, but is available separately on the City's website as per following link:

http://business.joondalup.wa.gov.au/BUurban/structure/CampusDistrict_15july02.pdf

PART 1

STATUTORY PLANNING SECTION

CAMPUS DISTRICT SUBJECT LAND

OVERVIEW

1. Parts of the Structure Plan

This Structure Plan comprises two parts:

Part 1: Statutory Planning Section
Part 2: Explanatory Report

2. Statutory Basis

Clause 9.8 of the City of Joondalup District Planning Scheme No. 2 (hereinafter called 'The Scheme') provides, amongst other things, that a provision, standard or requirement of a Structure Plan approved under Part 9 of the Scheme shall be given the same force and effect as if it was a provision, standard or requirement of the Scheme.

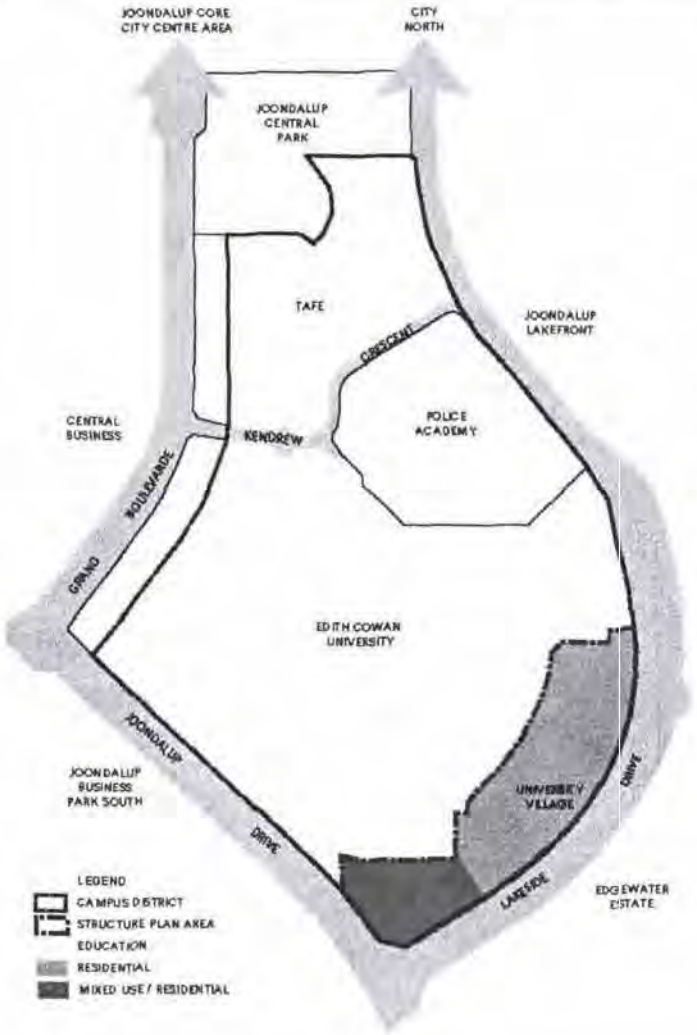
Subclause 9.8(f) of the Scheme states that where, in the event of there being any inconsistency or conflict between any provision, requirement or standard of the Scheme and any provision, requirement or standard of an Agreed Structure Plan, the provision, requirement or standard of the Scheme shall prevail.

3. Summary

This Structure Plan includes the area of the Campus District defined within the Development Plan and Manual and refers more specifically to the University Village which is Part Lot 5, and has an area of approximately 6.9 ha to be developed by LandCorp and approximately 0.8 ha to be developed by Edith Cowan University some time in the future. The majority of the Structure Plan area is bounded by Lakeside Drive, Joondalup Drive and the Edith Cowan University Campus.

The subject land is predominantly zoned Centre and the Joondalup Development Plan and Manual has been adopted as the Structure Plan for this area. This Structure Plan provides the framework for the progressive development of the subject land.

The Explanatory Report provides further explanation about the site and the intended design.



CAMPUS DISTRICT LAND USE PLAN

PART 1 – STATUTORY PLANNING SECTION

As provided for under the provisions of Clause 3.11 and Part 9 of the Scheme, this part of the Structure Plan has the same force and effect as a provision, standard or requirement of the Scheme.

Part 1 of this Structure Plan has been endorsed by the Western Australian Planning Commission as a general guide to future subdivision, zoning and development of the land included in the University Village.Subject Area

The Structure Plan area comprises approximately 6.9 ha or Part Lot 5 Lakeside Drive, Joondalup, to be developed by Edith Cowan University.

1.0 DETAILS

The following land uses are examples of the categories of development envisaged for the different areas shown on the plan opposite.

All users should reflect the scale and amenity of the Campus District.

The University Village Subdivision guide Plan illustrates the potential development of student housing and POS as the interface with the Campus along the north-western boundary. The student housing would be orientated to the Campus buildings, landscaped areas and car parks. The Subdivision Guide Plan is for illustrative purposes only.

1.1 Residential Uses

Preferred uses:

- Residential

1.2 Mixed Use/Residential

The scale and operation of the commercial uses should respect the predominantly residential nature of the area, however recognising the strategic location of the site as a landmark building at the entrance to the City Centre.

CAMPUS DISTRICT PLOT RATIO

Preferred uses:

- Residential (Mandatory)
- Retail
- Office
- Entertainment
- Restaurant/Café
- Medical Suites
- Accommodation
- Community Facilities
- Recreation

Uses not permitted:

- Service Station
- Fast Food

2.0 PLOT RATIO

Plot ratios are to be in accordance with the plan opposite.

Plot ratio shall be determined as the ratio of the gross total of the areas of all floors of the buildings on a site to the area of land within the site boundaries. For this purpose, such areas shall include the area of any walls, but not include the area of lift shafts, stairs or stair landings common to two or more residential/commercial units, machinery, air-conditioning and equipment rooms, non-habitable space that is wholly below natural ground level, areas used exclusively for the parking of wheeled vehicles at or below natural ground level, lobbies or amenities areas common to more than one residential/commercial unit, or balconies or verandahs open on at least two sides.

The plot ratio requirements set out in the Residential Design Codes shall not apply to the Residential component of any development.

2.1 Residential Uses

Residential R60. The minimum amount of open space (as defined under the Residential Design Codes) is 30% subject to the provision of a courtyard with a minimum dimension of 4 metres.

2.2 Mixed Use/Residential

For residential purposes buildings should, as far as practical, comply with the R60 provision for Multiple dwellings under the Residential Design Codes. For other preferred uses, generally a plot ratio of 0.5 will apply. Council may approve of higher plot ratio and density for buildings of landmark qualities.

2.3 Institutional Uses

The scale and density of institutional development should as far as practical be compatible with surrounding urban fabric.

3.0 CARPARKING

It is intended that where lane ways are provided all access will be from the rear and all garaging will be at the rear.

Visitor parking is provided in the form of embayed parking within the road reserves

Car Parking Requirements:

Residential Dwelling:	2 bays per dwelling
Single Bedroom Dwelling:	1 bay per dwelling
Aged/Dependent Persons' Dwelling:	1 bay per dwelling
Residential Mixed Use:	1 bay per 30m^2 Net Lettable Area (Commercial) and 1 bay per dwelling

4.0 SETBACKS AND HEIGHTS

4.1 Residential Setbacks

The following special setback conditions apply to the University Village (in addition to the requirements of the Residential Planning Codes).

Front

- 1.0m minimum and 3m maximum. For lots abutting Lakeside Drive the Lakeside Drive elevation will be treated as the primary street frontage for these lots.
- Where front boundaries occur on the south side of the street up to 50% of the building frontage may be setback beyond the setback zone to allow for north-facing private spaces.

Rear

- For Lane ways - minimum 1.5m for carports and garages.
- For Streets – Minimum 2.0m for carports and garages (does not include entry structure) with a 1.5x1.5 metre visual truncation to apply to both sides of the garage where it meets the street.
- For lots abutting Lakeside Drive the secondary frontage will be treated as the rear for the purpose of these setback requirements. Buildings other than carports and garages will have a minimum setback of 1.5 metres (excludes entry structures). For lots not abutting Lakeside Drive the rear setback (other than stipulated for carports and garages) will be in accordance with the Residential Planning Codes.

Side

- In accordance with the Residential Planning Codes.
- All dwelling units may be constructed with one or more walls built up to one or more side or rear boundaries provided every dwelling unit shall have a courtyard with a minimum dimension of 4 metres.

Entrances

- Dwellings shall have clearly identifiable entries to primary frontages. For lots abutting Lakeside Drive both primary and secondary frontages shall have clearly identifiable entries with Lakeside Drive being treated as the primary frontage.
- The entry points shall be well defined with an articulated vertical structure no greater than 3.5 metres high and 2.5 metres wide. The structure may be located with a zero setback to the primary street frontage. For lots abutting Lakeside Drive a zero setback may also apply to the entry point from the secondary street frontage, with a maximum setback of 1.5 metres.

Fencing

- For all lots that do not abut lakeside drive, fencing shall be in accordance with clause C9.1 of the City North Guidelines.
- Fencing along the primary Lakeside Drive Frontage and for lots abutting public open space shall be constructed by the Developer in accordance with Council's requirements.
- Fencing along the secondary frontage for lots abutting Lakeside Drive may be solid to a maximum height of 1800mm above ground level or the front retaining wall (where applicable) up to a maximum of 50% of the fence length. The balance of the fence length may be solid to a height of 750mm and above this the fence shall be at least 50% visually permeable up to a maximum height of 1800mm.

Grouped Housing

- The layout of group housing developments should reflect the residential setbacks and gridded character of the street.
- The units should as far as possible, address the street.

4.2 Mixed Use Setback/Residential

Front

- 0m setback preferred.

Side and Rear

- 0m setback preferred or in accordance with the Residential Planning Codes.

4.3 Building Height

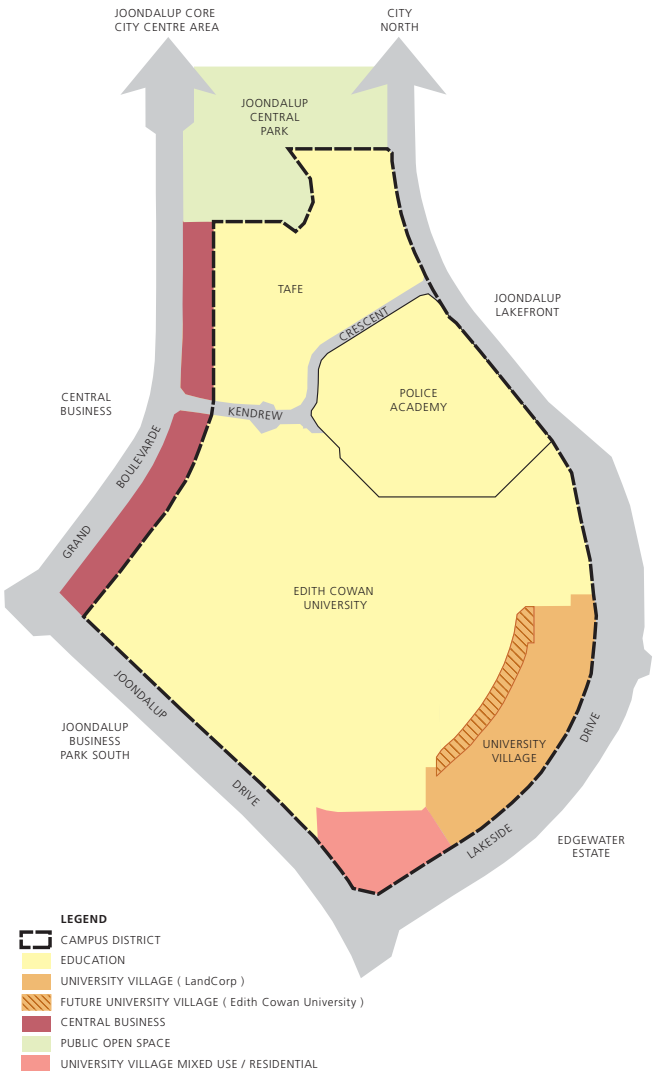
Residential precinct max two storeys. For residential lots fronting Lakeside Drive a portion of the dwelling is required to be two storeys.

Residential/Mixed Use and Institutional Uses – maximum two storeys. Council may approve a building in excess of two storeys for buildings of considerable landmark quality.

Roof spaces can be utilised to provide additional accommodation.

PART 2

EXPLANATORY REPORT



CAMPUS DISTRICT LOCATION PLAN

PART 2 – EXPLANATORY REPORT

This Part 2 Explanatory report provides an explanation of the context within which the subject land is located, being the Campus District and a more detailed assessment of the University Village.

1.0 SECTION A - CAMPUS DISTRICT

The Campus District is intended to be an active and vibrant centre for learning and cultural expression together with an inner-city community offering the opportunity for live, work and education.

The Campus District provides the "gateway" to the City at Lakeside Drive and this provides opportunities for high quality landscaping and landmark buildings.

The District merges with the CBD on Grand Boulevard allowing a more commercial focus and a more urban character in this area. Development on Grand Boulevard is guided by the Central Business District Guidelines.

Pedestrian linkages through the precinct extending from the university to the City Centre and Yellagonga Regional Park are encouraged through the provision of "pedestrian friendly" street environment.

1.1 District Description

The Campus District is bounded by Lakeside Drive to the east and south, Joondalup Drive to the south and southwest, Grand Boulevard to the northwest and the northern boundary of the TAFE site to the north. This Structure Plan illustrates the landuses proposed for the Campus District and looks more specifically at a portion of land fronting Lakeside Drive located within the south-eastern portion of the site, referred to as the University Village.

This Report has been divided into two sections. Section A examines the Campus District and Section B examines the land within the south western portion, referred to as the University Campus in some detail.

1.2 Existing Zoning & Land Use

1.2.1 Metropolitan Region Scheme Zoning

The subject land and the Lakeside Drive road reserve are zoned “Central City Area” under the provisions of the Metropolitan Region Scheme (MRS). Joondalup Drive road reserve is an “Other Regional Road” under the MRS.

1.2.2 Town Planning Scheme

The subject land is zoned “Centre” under the provisions of the City of Joondalup District Planning Scheme No. 2.

1.2.3 Existing Zoning and Land Use

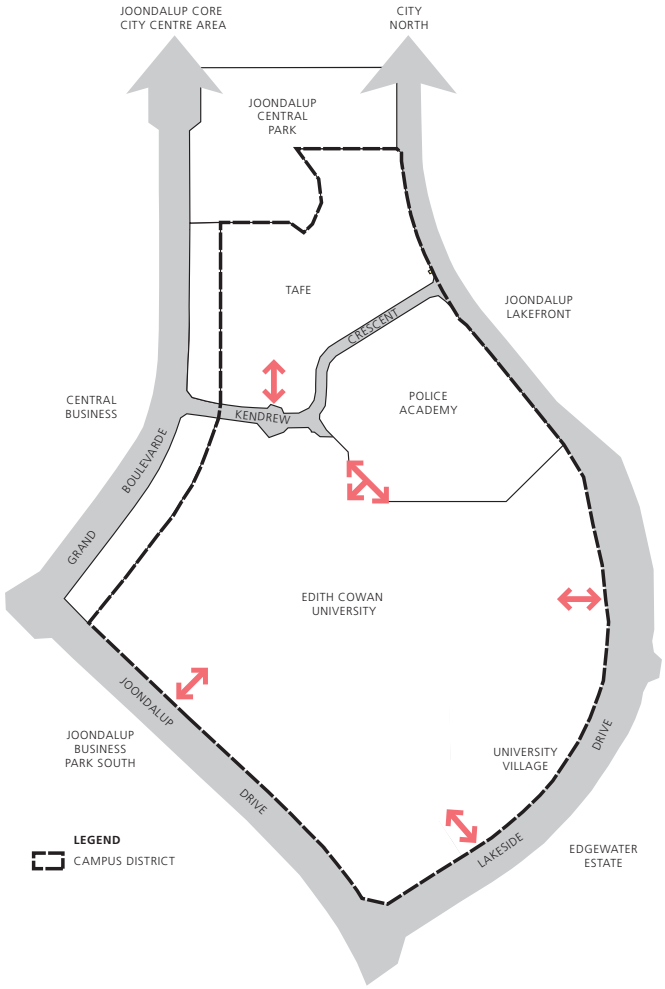
The ECU Campus encompasses the central and southern portion of the Campus District and is predominantly developed for educational purposes and associated activities. Future expansion of existing educational facilities is currently being undertaken and is proposed on various parts of the Campus. To the north, the City has approved the development for Police Academy and associated facilities. Further north is the Joondalup TAFE Campus. It is therefore apparent, that the Campus District focuses on education pursuits and activities.

The central portion of land covered by the State Forest contains densely planted pine trees. It is however, intended to develop much of this land for University purposes. Areas of cleared land are located over the sewer line to the ECU. Campus and along the fence lines of the Lakeside Drive and Joondalup Drive road reserves and the State Forest property boundaries.

1.3 Location

The subject land is located within the Joondalup City Centre, south of the core City area. The existing residential suburb of Edgewater and Yellagonga Regional Park are located to the south and east of Lakeside Drive. Joondalup Business Park South, currently undeveloped, is situated to the south-west across Joondalup Drive.

To the north is the Police Academy and TAFE and further to the north east is the developing Joondalup Lakefront. The Edith Cowan University forms the core of the development within the Campus District.



ROAD NETWORK

2.0 SITE PLANNING

2.1 Context Analysis

The Indicative Development Plan (IDP) prepared for the Joondalup City Centre in 1995 identifies the University Village as forming part of the University Campus with student accommodation in the far northern portion and the balance being undeveloped. The IDP illustrates the location of a ring road adjacent to Lakeside Drive, with entry points to Lakeside Drive at the intersection with Edgewater Drive and approximately 350 metres north-east of the Joondalup Drive/Lakeside Drive intersection.

Since the preparation of the Indicative Development Plan there have been modifications to the configuration of the landuses and road design to create a developable area of land capable of supporting the relocation of the Police Academy.

The existing residential development within Edgewater backs onto the Lakeside Drive Road reserve. Lakeside Drive is proposed to be offset to the west and as such provides a significant vegetation buffer at the rear of the properties.

2.2 Road Network

2.2.1 Lakeside Drive

As mentioned previously Lakeside Drive forms the eastern boundary of the Campus District and provides an important north south link to the Joondalup City Centre.

A preliminary profile for Lakeside Drive was issued to Council on 22 March 2000. Uloth and Assoc. have undertaken an assessment of the ultimate lane and intersection requirements for Lakeside Drive (refer **Appendix 1**). The recommendations of the Uloth study have been incorporated into an indicative layout for Lakeside Drive for both the interim and ultimate carriageway scenarios as attached at **Appendix 2**.

In the short to medium term only one carriageway of Lakeside Drive is necessary. It is proposed that the carriageway closest to ECU would be constructed initially to enable the streetscape adjacent the Campus Village to be completed and to retain the maximum buffer between Lakeside Drive and the existing homes within Edgewater. Typical intersection treatments are shown within Appendix 2 including the proposed visitor parking cap road system and 80m left turn pockets into subdivisional roads. Median islands adjacent the cap road entry/exit have been provided to improve the operational characteristics of the cap road.

The cap road system is generally for visitor parking with some subdivisional access permitted as shown. Left turn slip lanes have not been provided for the entry to the cap road since traffic volumes are low. The cap road incorporates a “slow point” at about the half way point to reduce traffic speeds.

The first access into the ECU Campus Village on Lakeside Drive from Joondalup Drive has been located approximately 200m from Joondalup Drive. Only limited clearing and bulk earthworks to the second carriageway of Lakeside Drive are intended in the short term to ensure a balanced cut to fill for the ultimate carriageway layout. This will enable the bushland setting to be largely retained and avoids the second carriageway earthworks becoming an unsightly scar on the environment and an ongoing maintenance problem for council.

The ultimate intersection configuration for Lakeside/Joondalup is also shown in **Appendix 2**. It is noted the major traffic load is expected to be from Joondalup Drive northbound into Lakeside Drive and visa-versa hence the double turn pockets and long turn pockets for these movements.

The balance of the existing Lakeside Drive road reserve adjacent Yellagonga Reserve which is not required for road or drainage purposes is intended to be incorporated into the Yellagonga Reserve in accordance with a previous undertaking from LandCorp to CALM.

2.2.2 Joondalup Drive

Joondalup Drive forms the southern and western boundary to the Campus District. Joondalup Drive also provides an important north south link to the Joondalup City Centre. Two entrance points to ECU are located via crossovers to Joondalup Drive.

2.2.3 Grand Boulevard

Grand Boulevard extends north south through the centre of the Joondalup City Centre and the rear of development fronting forms the western boundary of the Campus District. To the north of the subject land the Grand Boulevard / Hodges Drive extension enables a direct link to the Mitchell Freeway.

2.2.4 Kendrew Crescent

To accommodate the Police Academy development, Kendrew Crescent has been reconfigured and extends east west from Grand Boulevard and then extends in a north and easterly direction. Notwithstanding the reconfiguration of the road it still provides a direct link between Grand Boulevard and Lakeside Drive.

2.3 Open Space / Landscape

The Yellagonga Regional Park is the most significant landscape and public open space attribute located on the eastern side of Lakeside Drive. It is important that the Structure Plan recognises the need for pedestrian / cyclist movement to the regional park.

There are a number of open space and recreational areas internally within ECU that are also available for use by the public including the Open Air theatre, sports field and passive recreation area.

2.4 Pedestrian / Cyclist Movements

There are a number of important pedestrian and cyclist links throughout the Campus District. These allow convenient access to the public facilities located within ECU including the Pines Open-Air Theatre and the Lake. The Structure Plan proposes the retention and reinforcement of these links and proposes additional crossing points on Lakeside Drive to enable direct access from the University and Police Academy to the Yellagonga Regional Park.

ECU is keen to open the campus to the public (eg, the sports complex and open air theatre). Pedestrian and cyclist connections will contribute to this interactive process.

It is also important to improve the pedestrian and cyclist links from Edgewater to the City Centre. Opportunities exist to link with the footpath in Lake Valley Drive and dual use path extending from Hindmarsh Way.

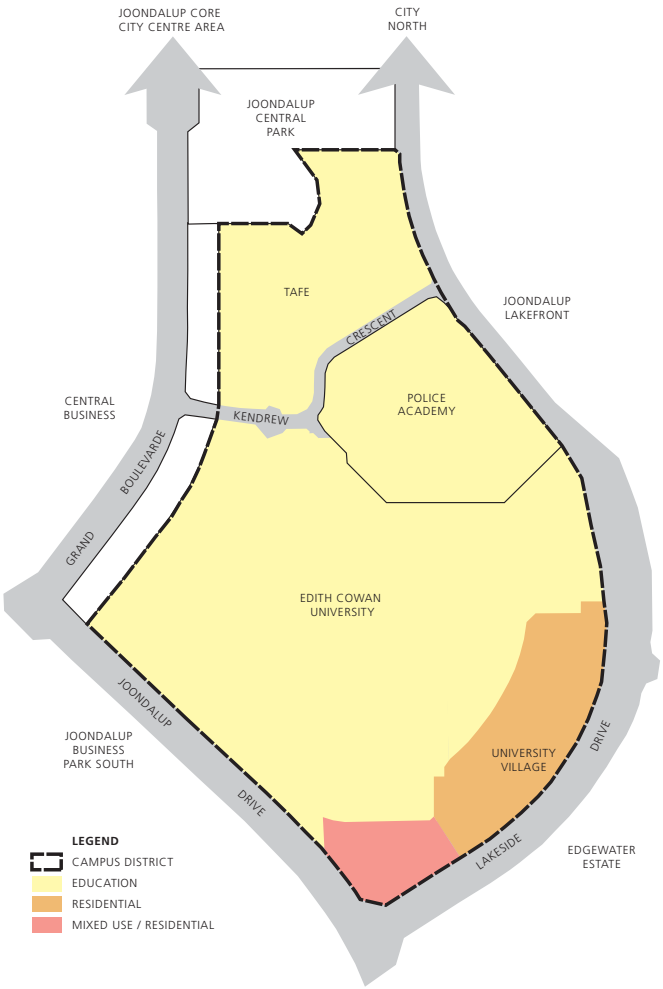
2.5 Existing Vegetation

The majority of land within the Campus District is developed or has development proposals/approvals apart from the land within the southwestern portion. This area comprises existing bushland and is proposed within this Structure Plan and the Edith Cowan University Joondalup Campus Masterplan for residential development.

The vegetation found within the area of the Campus Village is typical of the vegetation found along the eastern margin of the Spearwood Dune System of the Swan Coastal Plain. In broad terms, it is characterised by Tuart/Banksia association occurring in a mosaic over limestone. Marri/Jarrah and Jarrah/Banksia associations on deep sands.

None of the vegetation types found on campus were reported as rare or restricted in their distribution. All are represented in secure reserves in the region, including Yellagonga Regional Park, Neerabup National Park and CALM's Woodvale Research Centre.

Sensitive design should be applied to maximise the retention of the Jarrah/Banksia, Marri/Jarrah and Tuart open woodlands (identified as of high retention value) in the central north eastern portion of the development site.



UNIVERSITY VILLAGE LAND USE PLAN

SECTION B - UNIVERSITY VILLAGE

3.0 DESCRIPTION

The University Village is located in the south-eastern sector of the Campus District at the intersection of Lakeside Drive and Joondalup Drive, extending in a north easterly direction along Lakeside Drive for approximately 620 metres.

In terms of the relationship with the Campus District, the subject land will ultimately be in close proximity to University buildings and allows for the integration of student accommodation, which will be developed in the future.

3.1 Integration with ECU

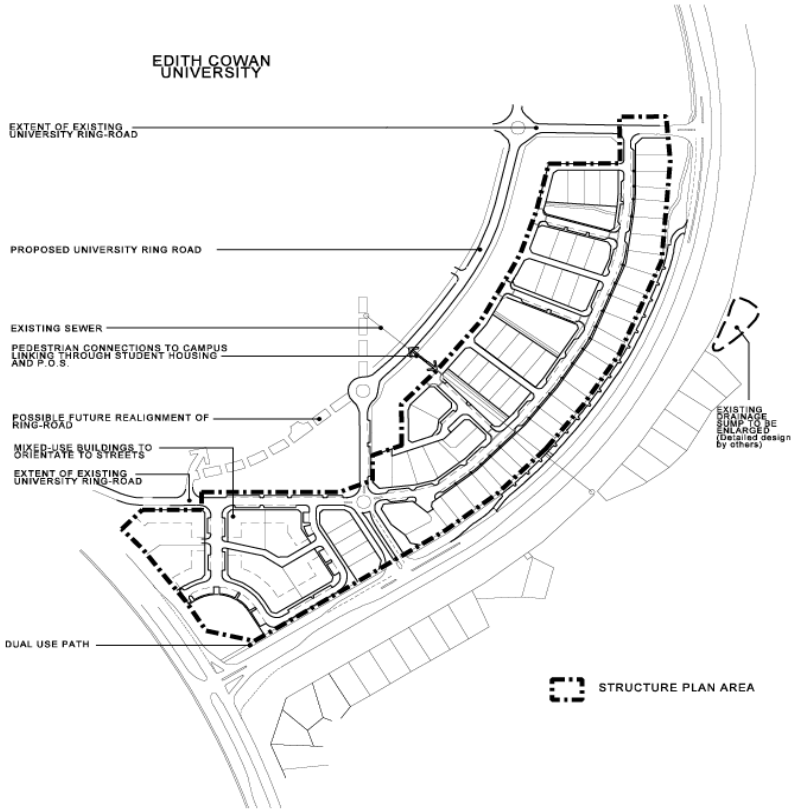
The Joondalup Campus Master Plan (the Master Plan) has identified the majority of the University Village land as being subject to acquisition by LandCorp. The Master Plan identifies the subject land surrounded by Campus buildings and car parks to the north-west, student housing and child care centre to the north and bushland to the west.

The boundaries of the University Village land are formed by portion of the Campus ring road (to the north-west), bushland (to the west), Lakeside Drive (to the south and east), and a main entrance road linking Lakeside Drive and the ring road (to the north). A second main entrance road is situated approximately 200 metres north of the Joondalup Drive/Lakeside Drive intersection.

4.0 INDICATIVE SUBDIVISION GUIDE PLAN

An Indicative Subdivision Guide Plan has been prepared for the site based on an extensive site survey and synthesis of planning, landscape and engineering opportunities and constraints. This is included within **Appendix 3**. The Guide Plan illustrates the manner in which the site may be developed however is subject to detailed design and therefore, may change and evolved through the detailed design process.

The Indicative Subdivision Guide Plan is intended to provide confidence that the essential elements of the design including servicing, land use and density, comply with Council and WA Planning Commission requirements.

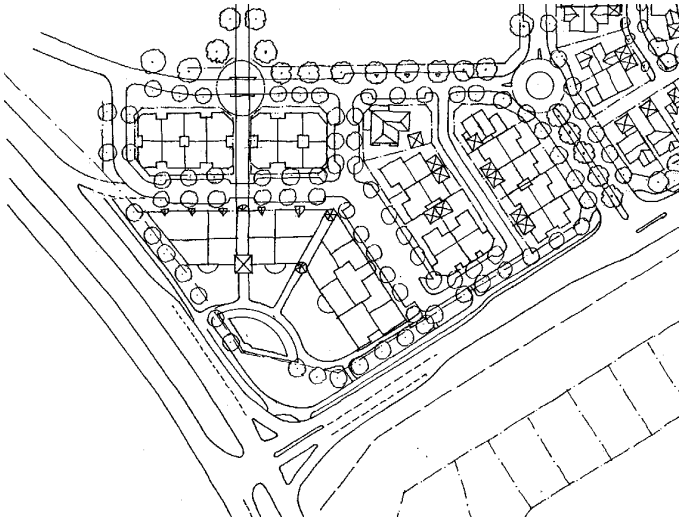


UNIVERSITY VILLAGE INDICATIVE SUBDIVISION GUIDE PLAN

4.1 Preferred Land Uses and Density

It is intended that the development will be predominantly residential with student accommodation in an integrated **university village**. It is intended to allow for a variety of lot sizes to ensure a mix of housing product. The development on the site will have a base density of R60.

On the corner of Joondalup Drive and Lakeside Drive, mixed use / residential development is proposed with a base density of R60. Council may approve a development to a higher code for buildings having suitable landmark qualities. The University Village Development Plan (Appendix 4) and sketch below, illustrates the manner in which the Mixed Use / Residential may be developed. It is considered likely that residential development will occur as part of the first stage of development and over time the robust design will allow for changes in use.



A pedestrian link is proposed adjacent to the mixed use sites to encourage pedestrian/cyclist links between the subject land and the ECU campus. This could be either in the form of Public Open Space or a pedestrian access way.

4.2 Public Open Space and Landscaping

The University Village has employed the same philosophy for the open space design and distribution to that in City North and Joondalup Lakefront, proposing the integration of open space into the residential environment.

Four areas of Public Open Space (POS) are proposed. These will incorporate a mix of open space experiences including preservation of existing vegetation and more formalised / grassed areas. The open space will allow for pedestrian / cyclist linkages between the university and the Yellagonga Regional Park. The open space at the corner of Joondalup Drive and Lakeside Drive is intended to provide a civic space at the entrance to the City Centre. This can be utilised for community activities.

In accordance with the Liveable Neighbourhoods Community Design Code Element 4. Amount of public open space R3 and R4, a contribution of 10% of the gross subdividable area must be given up free of cost by the subdivider for public parkland. A discount of 20% of the public open space contribution may be agreed to under certain circumstances.

The amount of open space will be provided at the subdivision stage in accordance with Commission policy.

4.3 Movement Network

4.3.1 Road System

Uloth and Associates have been commissioned to determine future traffic flows on the Section of Lakeside Drive fronting the subject land as well as long term lane configurations for the future Joondalup Drive - Lakeside Drive intersection and access requirements for the proposed development off Lakeside Drive. This represents a summary of the conclusions of the Updated Traffic Forecasts and Evaluation, the entire report is contained within **Appendix 1**.

- Lakeside Drive will carry between 23,000 and 29,000 vehicles per day in the long term, in the vicinity of the proposed development as shown the Technical Appendix. This is significantly higher than previous forecasts due to the decision not to connect Edgewater Drive to Lakeside Drive as was previously planned.
- In the long term, three approach lanes will be required in Lakeside Drive at the signalised Joondalup Drive Lakeside Drive junction, as shown in the Technical Appendix. That is, a left turn lane, a shared left turn and right turn lane should permit 2 right turn vehicles to queue without blocking the left turn.
- A minimum intersection spacing of 200 metres should be provided within Lakeside Drive between the stop line at the Joondalup Drive - Lakeside Drive signalised junction and the first access road to the proposed development.

MOVEMENT NETWORK

A minimum intersection spacing of 130 metres should be provided within Lakeside Drive at all intersections and junctions, in the long term.

- Where possible, auxiliary lanes should be 100 metres long left turn auxiliary lanes (including taper) should be provided.

Based on the recommendations of the Uloth Study, the subject land is serviced by two main access/egress points, as follows:

- 0 metres north-east of the Joondalup Drive/Lakeside Drive intersection;
- Approximately 100 metres north of the Lakeside Drive/Edgewater Drive reserve intersection.

Internally the majority of lots are accessed via rear laneways. Road reserve widths vary from 10m - 22m and laneways are 6m. A 'CAP' road system is proposed within Lakeside Drive to provide for visitor access and parking to those lots fronting Lakeside Drive. These are typical of the reserve widths and configuration within the Joondalup City Centre and are standard with the Liveable Neighbourhood Code. The network of streets and lanes is highly connected and supports a robust and variable residential / mixed use university village.

Careful attention has been given to the location of the southern boulevard connection to the university to enable a connection with the proposed internal campus spine road.

4.3.2 Pedestrian / Cyclist Movement

The movement network sketch illustrates the key linkages and integration with existing movement systems. It is evident that cross movement from Edgewater and Yellagonga to the University Campus and on to the City Centre are paramount in the design. This includes two crossing points. The north most pedestrian crossing is intended to link the existing shared path in Hindmarsh Way with the northern POS within the University Village and further west to the University campus. Once in the University Campus, there are various options for pedestrian / cyclist movements further north to the City Centre. Alternatively, once crossed onto the western side of Lakeside Drive this shared path will also extend to the City Centre via Boas Avenue.

A central crossing is proposed linking the existing footpath in LakeValley Drive to a central linear open space ultimately extending through to the University Campus. Linkages to the City Centre are then through the TAFE campus and Central Park.

A shared path is also proposed on the eastern side of Lakeside Drive to connect with Grassbird Avenue and through to Yellagonga Regional Park.

Internally, the design picks up the main north-south movements through the University Campus linking with the lake and university carparks and buildings.

4.4 Topography

The landform of the subject site is characterised by two high points at the northern (47.5m AHD) and southern (43.5m AHD) extremities, with a saddle in the southern portion of the site. The saddle ranges in height from 36.5m AHD on the western boundary to a low point of 33m AHD at the reserve boundary of Lakeside Drive, near the centre of the site.

The northern section of the subject land contains a flat area, associated with the ridgeline along the western boundary. There is moderately sloping land, with a gradient of approximately 13% adjacent down to Lakeside Drive. The centre of the site slopes down from the north to the south at a gradient of approximately 7%. The topography of the southern section slopes down northward from the Joondalup Drive/Lakeside Drive intersection to the low of the saddle at a gradient of approximately 6%.

The construction of Joondalup Drive has resulted in the south-western boundary of the site being approximately 2.0m below the top of the batter.

A detailed tree pick is being undertaken for the subject land. The tree survey is intended to enable the P.O.S design to retain the more significant trees where possible.

4.5 Earthworks & Retaining

It is therefore evident that the natural topography over the University Village varies from relatively flat at the southern end to very steep in the north. The natural steepness is further exacerbated by the earthworks required for Lakeside Drive. In order to provide lots without excessive cross or longitudinal grades retaining walls and earthworks will be necessary.

It is anticipated that those lots fronting Lakeside Drive and north of the main divided carriageway entry road into the Campus Village will have front retaining walls up to 2.5m high. These walls will include steps and a uniform open screen fence.

Other front and side boundary retaining walls will be required in various locations throughout the estate.

A detailed tree pick up has been completed for the proposed P.O.S areas. Although some earthworks will be required on the northern P.O.S fronting Lakeside Drive the tree survey will enable the P.O.S design to retain the more significant trees.

4.6 Drainage

The University Village site is generally within a drainage catchment which flows to the south east toward Lakeside Drive. The low point in the topography occurs to the west of the existing drainage basin within the Edgewater area east of Lakeside Drive. This existing drainage basin has been designed and constructed to accommodate the runoff from Lakeside Drive (adjacent the University Village site) and a portion of the Edgewater development.

The natural ground levels in the vicinity of the University Village topographic low point are very steep (up to 1V:8H) and the northern verge of Lakeside Drive is approx. 1.5m below existing ground levels.

The construction of a drainage sump within the ECU Campus Village site at this low point will result in a massive "quarry " like excavation requiring extensive clearing. Such a drainage sump would be overlooked by Lakeside Drive traffic and homes within the Village ,would be a permanent scar on the landscape , will detract from the general amenity of the area and is an inappropriate drainage solution for the residents of the City of Joondalup. This is further illustrated and discussed within **Appendix 5**.

The most practical and appropriate form of disposing of the University Village runoff is therefore to increase the size of the existing drainage basin on the east side of Lakeside Drive.

Relevant details are summarised below :

Existing Sump

- Contributory Area =7.8 Ha (impervious)
- 100 YR Storage =10140m^3 (based on 1300m^3/Ha)
- Available Capacity =10260 m3
- 100 YR Top Water Level =RL 31.5 AHD

ECU Campus Village

- Contributory Area =1.8 Ha
- 100 YR Storage Required =2340 m^3

Proposed Sump

- Total Contributory Area =9.6 Ha
- 100 Yr Storage Required =12480 m^3
- 100 YR Top Water Level =RL 31.5 AHD

The existing sump can be readily modified to incorporate the increased sump capacity without any significant loss of vegetation. LandCorp would commit to screen planting and landscaping of the modified basin and rehabilitation of the nearby areas of the Lakeside Drive road reserve that have been previously cleared.

This proposed drainage solution maximises retained vegetation, increases rehabilitation of existing cleared areas and reduces Council maintenance costs. Overall it is an improvement in the urban environment and is therefore appropriate in this instance.

4.7 Water

Existing water mains in the vicinity of the proposed development are summarised below:

- Joondalup Drive : 900 dia steel main
- Lake Valley Drive : 150 dia A.C
- Lakeside Drive (at Grassbird Avenue) : 200 dia PVC

The proposed University Village development will be serviced by interconnecting the existing water main network to Water Corporation standards.

4.8 Sewer

The site is currently serviced by a 225 dia. sewer discharging to the Joondalup Branch Sewer via Lake Valley Drive.

An existing private gravity sewer which services the ECU Campus traverses the proposed development. The Water Corporation have confirmed that this sewer has been constructed to Water Corporation standards and can be incorporated into the sewer network for the proposed development.

The existing private sewer is up to 9.5m deep and its location coincides with a public open space to avoid prohibitive sewer relocation costs.

The backfill compaction to the existing sewer has been tested using Electric Friction Cone Penetrometer. Test results indicate the sewer backfill has been compacted to at least the density of the surrounding in situ soil.

4.9 Power

An existing high voltage underground power cable is located on Lakeside Drive near Grassbird Avenue.

This cable will be extended south to tie into an existing aerial HV supply on Joondalup Drive and will service the proposed development via a transformer with HV switch gear.

4.10 Telstra / Gas

Telecommunications and gas infrastructure will be extended from existing networks to service the proposed development.

4.11 IT

A broad band communication system may be developed within the site offering intranet, cable / pay television, videos on demand, etc.

These opportunities strengthen the University Village focus with potential linkages to ECU and TAFE.

APPENDIX 1
Uloth & Associates Traffic Report

APPENDIX 2
Engineering Design – Lakeside Drive

APPENDIX 3
University Village Subdivision Guide Plan

APPENDIX 4
University Village Development Plan

APPENDIX 5
Additional Drainage Information

EDITH COWAN UNIVERSITY (ECU)
JOONDALUP CITY CAMPUS STRUCTURE PLAN AMENDMENT

PART 1 – STATUTORY AMENDMENTS

JOONDALUP CITY CENTRE DEVELOPMENT PLAN AND MANUAL – STRUCTURE PLAN NO 1

This Structure Plan is prepared under the provisions of Part 9 of the City of Joondalup District Planning Scheme No. 2

CERTIFICATION OF AGREED STRUCTURE PLAN
(SCHEDULE 8)

CERTIFIED THAT MODIFIED AGREED JOONDALUP CITY CENTRE DEVELOPMENT PLAN AND MANUAL, WAS ADOPTED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON 03 JAN 2008

.....
being an officer of the Commission duly authorised by the Commission
pursuant to section 24 of the *Planning and Development Act 2005*

AND BY RESOLUTION OF THE COUNCIL OF THE CITY OF JOONDALUP ON 6 JUNE 2006 AND THE SEAL OF THE CITY OF JOONDALUP WAS PURSUANT TO THE COUNCIL'S RESOLUTION HERETO AFFIXED IN THE PRESENCE OF

.....
Mayor

.....
Chief Executive Officer

CITY OF JOONDALUP · COMMON SEAL ·

Table of Contents

Figures, Maps & Diagrams:

1.0 Introduction

The site is located at Lot 9000 (40) Collier Pass, Joondalup, directly west of the main ECU Campus and is known as the 'Edith Cowan University (ECU) Joondalup City Campus'. The City Campus forms a link between the main campus and the Joondalup City Centre and is part of the Joondalup Central Business District.

The site is subject to the Joondalup City Centre Development Plan and Manual (JCCDPM) which is the 'Agreed Structure Plan' for the whole of the Joondalup City Centre area. The purpose of this report is to amend the JCCDPM to include specific objectives and guidelines for the ECU City Campus. This Structure Plan will become an amendment to the existing Structure Plan.

This Structure Plan will provide a comprehensive framework for the future development of the ECU Joondalup City Campus site for the consideration and approval of future development proposals by the Council. The new Structure Plan will be reviewed at appropriate intervals to reflect changes to the general growth and development of both the Joondalup City Centre and the University.

The City Campus Precinct will contain a range of land uses with Education as a preferred land use throughout the precinct. The existing list of preferred uses for the site will be retained with educational uses being added to the list. It is not intended that the Precinct be further subdivided as it is important for the university's long term viability that land tenure remains as flexible as possible. The Precinct will remain as one lot in one ownership.

The new Structure Plan is a long term plan with an anticipated life of over 20 years. Development of the site will be dependant on commercial feasibility and growth of the university student population. Initially ECU anticipates the City Campus will be primarily commercial in use, with buildings being adapted for university use over time.

Indicative Development Plans have been created to guide the development of the site. In the immediate term a student carpark will be developed and accessed by extension of Kendrew Crescent into the site. It is expected that development opportunities will arise along Kendrew Crescent West, and by 2022 development will extend further south along Grand Boulevard.

2.0 Amendment to Joondalup City Centre Development Plan and Manual (JCCDPM)

This amendment comprises two parts:
Part 1: Statutory amendments
Part 2: Background report

Part 1 – Statutory Amendments

The following sets out the proposed statutory amendments to the existing JCCDPM (the 'Agreed Structure Plan').

A1 Land Use

Add new Land Use to the list of Land Uses under clause A1 as follows:

A1.6 Education/Mixed Use
- Educational
- Residential
- Office
- Retail
- Accommodation
- Leisure and Entertainment
- Cultural facilities
- Community service facilities
- Medical Centre

Development shall generally be in accordance with the Proposed Structure Plan (Figure 1) and Indicative Development Plan (IDP) (Figure 2). Building outlines and forms shown on this plan are indicative only Document text shall take precedence over plans.

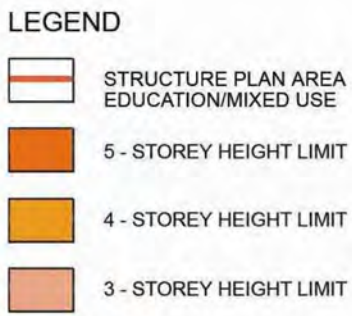


Figure 1
Proposed Structure Plan
Edith Cowan University ECU Joondalup City Campus

LEGEND

STRUCTURE PLAN AREA
EDUCATION/MIXED USE

EXISTING BUILDINGS

POTENTIAL NEW BUILDINGS

Figure 2 Conceptual only
Indicative Development Plan
Edith Cowan University ECU Joondalup City Campus

The Land Use Map and Legend shall be amended as follows:
See Map – A1 Land Use


Shenton
Mc Larty
Reid
Boas
Station Square
Transit Station
Grand Boulevard
Davidson Tce
Lakeside
Central Park
Collier
Kendrew
P
Land Use Legend
General City Uses
Civic
Education/Mixed Use
Retail
Police Station and Law Courts
Public Open Space
Residential Mixed Use
Parking
Where air rights are taken over the railway, such development will be included in the Central Business District.
Central Business District
A1 Land Use
A1 Land Use
February 1995 Joondalup City Centre • Development Manual •

A2 Plot Ratio

Add additional clause to clause A2

A2.4 Education/Mixed Use

Plot ratio shall not apply to the Education/Mixed Use Precinct.

A residential density of R100 applies.

A density of R160 may be approved where Council considers that a development has an appropriate landmark quality.

The Plot Ratio Map and Legend shall be amended as follows:
See Map – A2 Plot Ratio


Shenton
Mc Larty
Reid
Boas
Station Square
Transit Station
Grand Boulevard
Davidson Tce
Lakeside
Central Park
Collier
Kendrew
Plot Ratios
Other
1.0
1.5
2.0
2.5
Unlimited
Public Open Space
Not applicable
Central Business District
A2 Plot Ratio
A2 Plot Ratio
February 1995 Joondalup City Centre • Development Manual •

A3 Car parking

Amend clause A3.1 to include the following:

Education uses: As per Table 2: Car Parking Standards of District Planning Scheme No. 2

A4 Setback and Heights

Amend clause A4.1 as follows:

Education/Mixed Use
Buildings are required to have a nil (0 m) setback to all streets.

Open spaces are permitted between buildings to provide courtyards, landscaped spaces and small parking areas. These spaces will provide transition from the city centre urban context to the softer landscape of the Edith Cowan University Campus.

Add additional clauses to A4 Setbacks and Heights as follows:

A4.5 Heights of buildings within Education/Mixed Use Precinct.

The maximum height of buildings shall be in accordance with the Structure Plan (Figure 1).

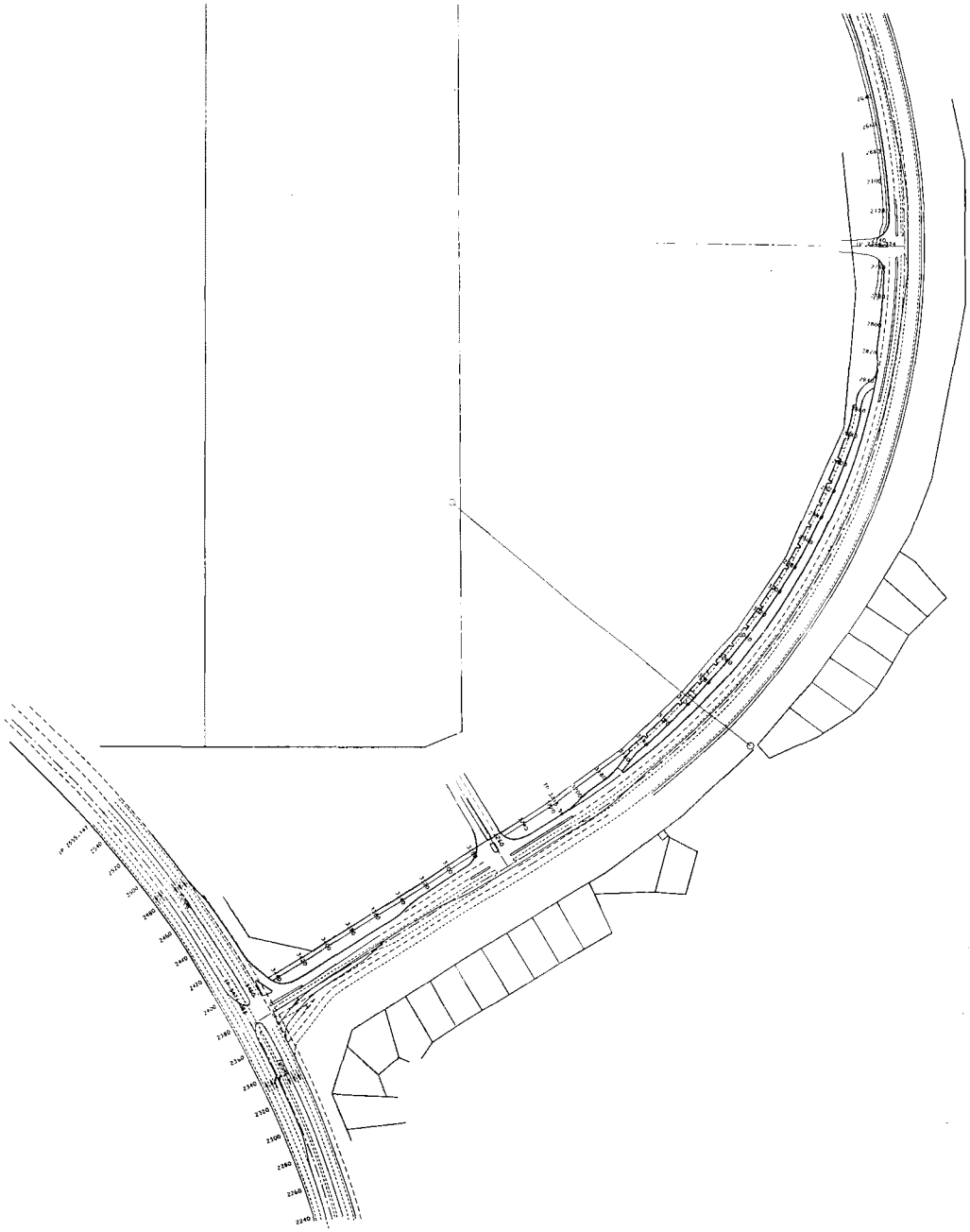
A4.6 Distance between buildings

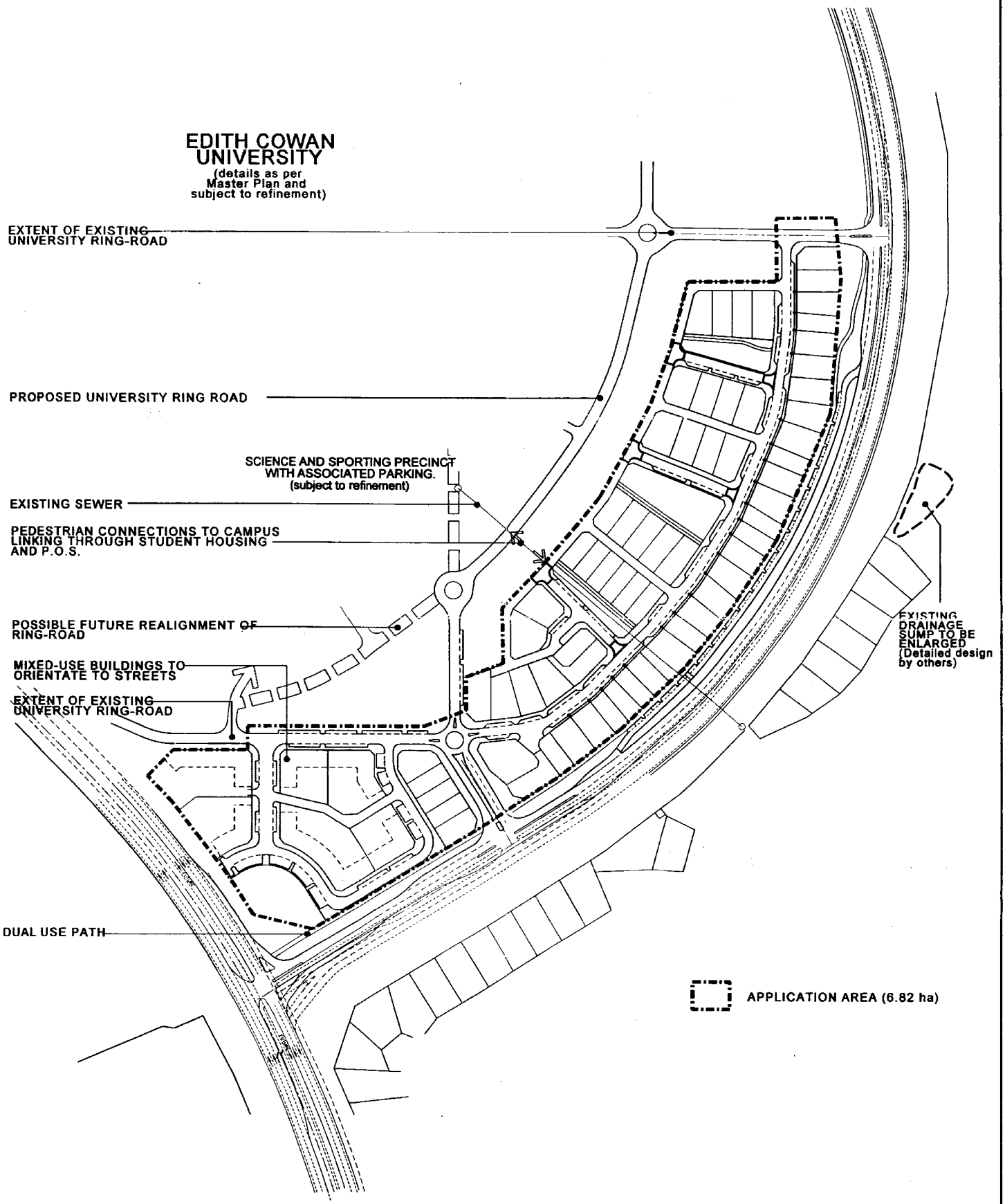
Buildings on the site shall be spaced so as to provide for a reasonable degree of solar access to the spaces between them. The appropriate separation distance will be determined by a number of factors, including,

(a) the height and massing of buildings to the north of the space,
(b) the orientation of the space and the buildings surrounding it,
(c) the intended use of the space, (movement, passive recreation or landscape)

Buildings can be stepped back with variations in height and alignment to provide interest and variety to spaces, whilst also ensuring that the spaces created are safe to use and the opportunity for passive surveillance from buildings is maximised.

Shadow analysis diagrams shall be submitted with development applications indicating the impact of new buildings on the adjacent buildings and open spaces.





UNIVERSITY VILLAGE
SUBDIVISION GUIDE PLAN

CLIENT: LANDCORP

DATE: T.B. PLAN NUMBER: SCALE: 1:2000

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